

## SOD-323 Plastic-Encapsulate ESD Protection Diodes

### DESCRIPTION

The SDxxC Series is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

This series has been specifically designed to protect sensitive components which are connected to power, data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

### Features

- ◆ 350 Watts Peak Pulse Power per (8/20 $\mu$ s)
- ◆ IEC61000-4-2 (ESD)  $\pm$ 30kV (air),  $\pm$ 30kV (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ Protects one I/O line (bidirectional)
- ◆ Low clamping voltage
- ◆ Low leakage current
- ◆ Working voltages : 3.3V, 5V, 8V, 12V, 15V, 18V, 20V, 24V, 36V
- ◆ Meets MSL 1 Requirements

### Pin Configuration

#### Cir

### Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Networking and Telecom
- ◆ Serial and Parallel Ports
- ◆ Peripherals

260°C/10s

- ◆ Packaging: Tape and Reel

### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                                              | Symbol    | Value        | Unit               |
|--------------------------------------------------------|-----------|--------------|--------------------|
| ESD per IEC 61000-4-2 (Air)                            | VESD      | $\pm 30$     | KV                 |
| ESD per IEC 61000-4-2 (Contact)                        |           | $\pm 30$     |                    |
| Peak Pulse Power( $t_p=8/20\mu$ s waveform)            | PPP       | 350          | W                  |
| Operating Temperature                                  | $T_{OPT}$ | -55 to +150  | $^{\circ}\text{C}$ |
| Storage Temperature                                    | $T_{STG}$ | -55 to +150  | $^{\circ}\text{C}$ |
| Lead Solder Temperature – Maximum (10 Second Duration) | $T_L$     | 260(10 sec.) | $^{\circ}\text{C}$ |

The above data are for reference only.

**Electrical Characteristics** (TA=25°C unless otherwise specified)

| PART<br>NUMBER | DEVICE<br>MARKING | V <sub>RWM</sub><br>(V)<br>(max.) | V <sub>B</sub><br>(V)<br>(min.) | I <sub>T</sub><br>(mA) | V <sub>C@1A</sub><br>(V)<br>(max.) | V <sub>C</sub><br>(V)<br>(max.) (@A) |     | I <sub>R</sub><br>(μA)<br>(max.) | C <sub>T</sub><br>(pF)<br>(max.) |
|----------------|-------------------|-----------------------------------|---------------------------------|------------------------|------------------------------------|--------------------------------------|-----|----------------------------------|----------------------------------|
| SD03C          | 2A                | 3.3                               | 4                               | 1                      | 7.5                                | 16                                   | 20  | 40                               | 450                              |
| SD05C          | 2B                | 5                                 | 6                               | 1                      | 9.8                                | 18                                   | 17  | 10                               | 300                              |
| SD08C          | 2C                | 8                                 | 8.5                             | 1                      | 13.4                               | 24                                   | 15  | 2                                | 120                              |
| SD12C          | 2D                | 12                                | 13.3                            | 1                      | 19                                 | 32                                   | 11  | 1                                | 75                               |
| SD15C          | 2J                | 15                                | 16.7                            | 1                      | 24                                 | 38                                   | 10  | 1                                | 68                               |
| SD18C          | 2K                | 18                                | 20.0                            | 1                      | 29                                 | 45                                   | 9   | 1                                | 57                               |
| SD20C          | 2L                | 20                                | 22.3                            | 1                      | 35                                 | 50                                   | 8   | 1                                | 52                               |
| SD24C          | 2H                | 24                                | 26.7                            | 1                      | 43                                 | 52                                   | 7   | 1                                | 50                               |
| SD36C          | 2N                | 36                                | 40                              | 1                      | 60                                 | 75                                   | 4.5 | 1                                | 35                               |

## ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20 $\mu$ s Waveform per IEC61000-4-5

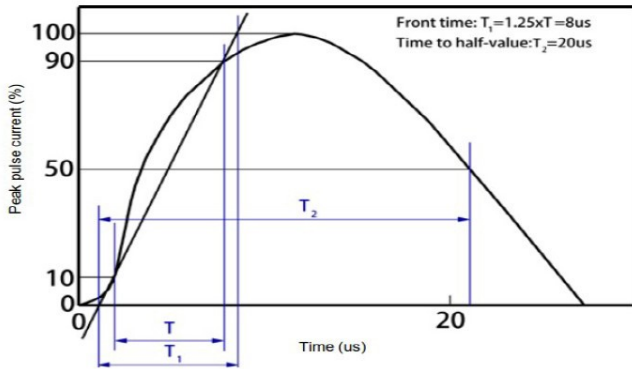


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

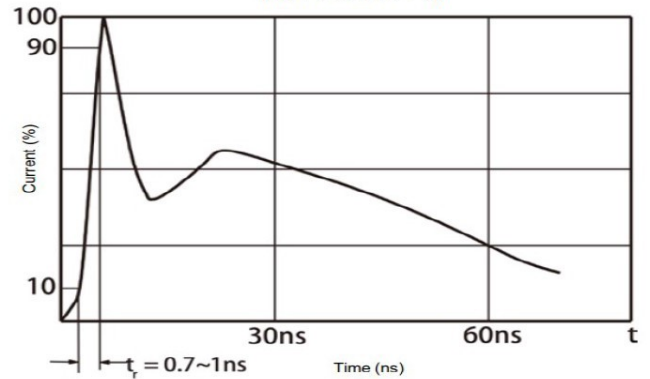


Fig 3 Voltage vs Capacitance

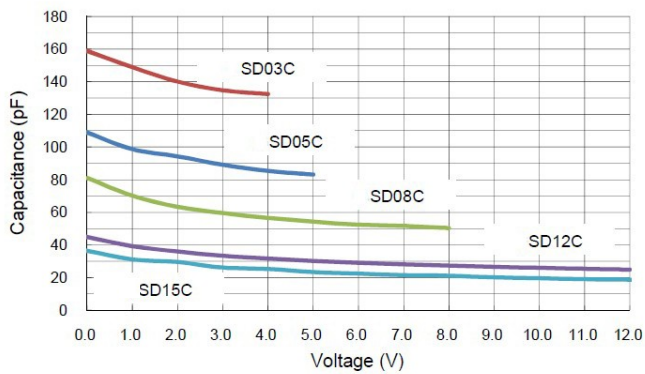


Fig 4 Voltage vs Capacitance

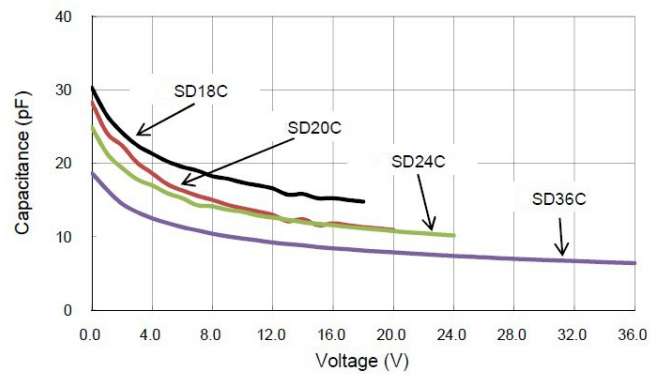


Fig 5 Clamping Voltage vs Peak Pulse Current

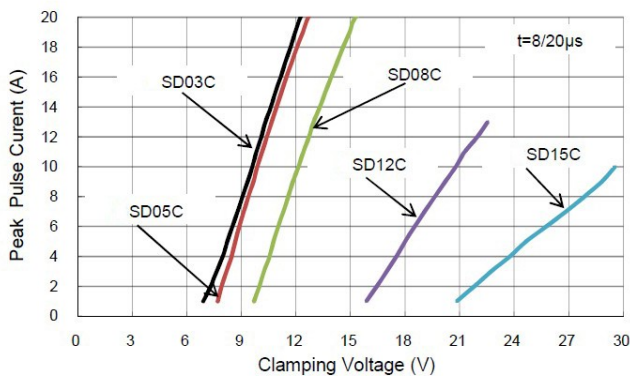


Fig 6 Clamping Voltage vs Peak Pulse Current

